REMARKS

Claims 1-30 and 32-35 are in the case. Claim 31 was withdrawn from consideration as a result of an earlier restriction requirement and is now cancelled. Claims 32-35 are newly added.

Claim Objections

In paragraph 14 of the Office Action, claims 11 and 16 were objected for informalities. In claim 11, the word "the" in line 2 was misplaced. In claim 16, there was an issue because intervening claim 15 admitted to a single support block and claim 16 admitted to a plurality of support blocks. The informalities have been corrected by way of amendment.

Claim Rejections Under 35 U.S.C. § 112

In paragraph 2 of the Office Action, claims 1-30 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the rejection is based on the use of the language "positioned below grade" and "below grade outlet" in claim 1. The Office Action asserts that because claim 1 is directed only to the "subcombination" system, and not to the combination of the system and the ground to which the attribute "grade" applies, the "below grade" limitation lacks antecedent basis.

The rejection, however, is improper. While it is true that claim 1 is directed to the system, the recitation that a portion of the overpack body is positioned below grade is a positive structural limitation that recites the cooperation of the overpack body with respect to the ground. Such language is commonly used in the claims of patents for systems/apparatus without reciting the ground itself as a positive limitation in the body of the claim. Examples of patents that contain such language in their claims include U.S. Patent 6,902, 150, U.S. Patent 6,793,450, and U.S. Patent 6,742,314. In fact, a quick search of the United States Patent & Trademark Office's database revealed that at least 156 U.S. patents have issued that contain the language "below grade" or "below-grade" in the claims.

Additionally, even if the language "positioned below grade" is considered to be functional in nature, the MPEP is clear that functional language does not by itself render an apparatus claim indefinite under 35 U.S.C. § 112, second paragraph, when the language "sets definite boundaries on the patent protection sought." *See MPEP* § 2173.05(g). With that said, the use of the term "below grade" in line 1 of claim 1 clearly delineates and definitively sets forth the scope of the patent protection sought.

With respect to the use of the term "below grade" in line 5, the term must be viewed in its full context, which is "a below grade outlet." Thus, in line 5, the term "below grade" is used as an adjective/modifier that describes and further limits the outlet.

For these reasons, it is believed that the language "below grade" meets the statutory requirements of definiteness and that the rejections of claims 1-30 under 35 U.S.C. § 112, second paragraph, are improper. Accordingly, it is respectfully requested that the rejections be withdrawn.

Response to Claim Interpretation

At the end of paragraph 2 of the Office Action, it is stated that the claims are "replete with statements of intended use. The terms "positioned below grade" and "the shell and the inlet ventilation duct connected by welding" are among the claim language cited as being statements of intended use (i.e., functional in nature). These terms, however, are recitations of structural cooperation. As stated above, the term "positioned below grade" is a positive recitation of the relative structural position of the overpack body in relation to the ground. Such language is very different than stating that the over pack body is "for positioning below grade" or "adapted to be positioned below grade," which the Applicant agrees would be statements of intended use. It is respectfully requested that the term "positioned below grade" be given patentable weight.

Regarding the term "connected by welding," the same arguments apply. It is neither functional nor a statement of intent. This term clearly recites the structural cooperation/connection of the shell and the ventilation duct, and should be given patentable weight.

Finally, even if the aforementioned language is considered to be functional in nature, the MPEP is clear that such functional language is acceptable in apparatus claims when the language "sets definite boundaries on the patent protection sought." *See MPEP* § 2173.05(g).

Claim Rejections Under 35 U.S.C. § 102(b)

In paragraph 2 of the Office Action, claims 1, 3, 7, 8, 18, 19, 24, 25, 29, and 30 were rejected under 35 U.S.C. § 102(b) as being anticipated by one of U.S. Patent 5,753,925 ("Yamanaka"), U.S. Patent 4,971,752 ("Parker"), or U.S. Patent 3,111,078 ("Breckenridge").

In paragraph 3 of the Office Action, claims 1, 3, 5, and 30 were rejected under 35 U.S.C. § 102(b) as being anticipated by RU 216802C ("Makhmutov.").

In paragraph 4 of the Office Action, claims 1-3, 9-12, 18, 19, 21, 24, 26, 29 and 30 were rejected under 35 U.S.C. § 102(b) as being anticipated by one of U.S. Patent 3,111,586 ("Rogers") or U.S. Patent 4,663,533 ("Kok").

In paragraph 5 of the Office Action, claims 5 and 6, were also rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 3,111,586 ("Rogers").

In paragraph 6 of the Office Action, claims 1-5, 13, 18, and 21-23, were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,834,916 ("Chaudon").

In paragraph 7 of the Office Action, claims 2, 4, 5, 6, 10, and 14-17 were also rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,753,925 ("Yamanaka").

The anticipation rejections of the claims based on each of these references will be discussed in turn below.

Claim Rejections Based on Yamanka

The Office Action cites Yamanka as disclosing a radioactive waste storage facility having a body 38 having a cavity and an inlet ventilation duct (consisting of intake port 11 and duct 19) extending from an above grade outlet 11 to a below grade inlet 30Aor 30B.

By way of background, Yamanka discloses a warehouse-style storage facility that is designed to accommodate a plurality of canisters 6 in an internal room. The Yamanka facility utilizes the warehouse body/walls 38 to contain radiation emitted from the storage tubes 6. *See Yamanka*, FIG. 1. The storage tubes/canisters 6 are maintained in a vertical orientation within the Yamanka storage facility, and prevented from tipping over, by the horizontal slab 9, the intermediate horizontal slab 10, and the vibration limiting members 16. *See Yamanka*, FIGS. 1 and 2.

In comparison, the system of the present invention utilizes an overpack-style body (and the ground itself) to contain radiation emitted from the storage canister.

Claim 1 has been amended to recite that the body is an "overpack body." The term overpack is a term of art in the radioactive waste storage industry, and refers to a body constructed of a radiation shielding material that forms an internal cavity that is specifically sized to accommodate a single canister, or single stack of canisters, in such a manner that a gap exists between the internal walls of the overpack body and the canister(s). It is assumed that the Examiner is familiar with the term "overpack" and its meaning in the art. To the extent evidence is required documenting the use of the term "overpack" in the art, attention is directed to such patents as U.S. Patent 4,175,66, U.S. Patent 5,319,686, and U.S. Patent 6,718,00. Finally, if it is felt that a declaration or affidavit from one skilled in the art is necessary to support this definition, one can be supplied upon request.

Yamanka does not disclose a system for storing radioactive waste having an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity, as is required by amended claim 1. To the contrary, Yamanka discloses a warehouse facility wherein the warehouse body 38 forms a large room capable of storing a plurality of canisters 6 in a side-by-side arrangement. *See Yamanka*, FIG. 1 and 2. This is not an overpack body.

Additionally, claim 1 also requires that "a major portion of the overpack body be positioned below grade." However, the majority of the Yamanka storage facility's height is

located above-ground. Thus, contrary to the assertions made in the Office Action, Yamanka does not teach a storage facility wherein a major portion of the body is positioned below grade, as is required by claim 1.

Therefore, Yamanka does not teach or suggest an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity. Nor does Yamanka teach a storage facility wherein a major portion of the overpack body is positioned below grade. It is respectfully requested that the anticipation rejection of claim 1 over Yamanka be withdrawn.

Regarding the anticipation rejection of claim 6, the Office Action is silent as to how Yamanka discloses a storage facility that anticipates claim 6. Claim 6 requires, *inter alia*, two inlet ventilation ducts and that the above grade inlets of each inlet ventilation ducts be on opposing side walls of the body. Such a feature is not disclosed in Yamanka. While a single above grade inlet 11 is provided in the side wall of body 38 pf the Yamanka facility, no other above grade inlet exists on any other side wall of Yamanka. *See Yamanka*, FIGS. 1 and 2. Accordingly, it is respectfully requested that the rejection of claim 6 as being anticipated by Yamanka be withdrawn.

Regarding the anticipation rejection of claim 7, Yamanka is cited for "at least a combination of the intake port and entrance duct 19 is insulated from the upper part of body 38 by air, which is an insulator." This rejection is improper for a number of reasons. First, claim 7 requires that at least a portion of the inlet ventilation duct be insulated from the overpack body. However, the inlet ventilation duct 19 of the Yamanka facility is in direct contact with the body 38 for its entire length. *See Yamanka*, FIG. 1 and 2. At no point is the inlet duct 19 separated from the body 38 or in any way insulated therefrom. It can not even be asserted that the horizontal inlet section 11 of the duct 19 is not in contact with the body 38 because the body 38 itself forms the horizontal inlet section 11.

Second, the assertion that the upper-most portion of the wall 38 is insulated from the inlet ventilation duct 19 by the ambient air surrounding the facility is both unreasonable and against

the plain meaning of the claim language. While it is understood that during patent examination, the pending claims are to given the broadest interpretation possible, this caveat is limited by the concepts of reasonableness and consistency with the specification. Specifically, MPEP § 2111 states that "during patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.'" *See MPEP § 2111* (emphasis added). Moreover, "the words of the claims must be given their plain meaning...." *See MPEP § 2111.*

Therefore, Yamanka fails to disclose a storage facility wherein at least a portion of the inlet ventilation duct is insulated from the body, as is required by claim 7. It is respectfully requested that the rejection of claim 7 as being anticipated by Yamanka be withdrawn.

Regarding the anticipation rejection of claim 8, the Office Action states that "at least a portion of the [Yamanka] cavity [32A, 32B] is insulated from the body by particle board 14." This rejection is also improper. Claim 8 requires that at least a portion of the cavity be insulated from the body. The particle board 14 of Yamanka is fully disposed within the canisters 6 themselves. *See Yamanka*, FIG 2. Moreover, a close review of the detail of FIG. 8 of Yamanka, and the corresponding discussion, reveals that a space (which is part of the cavity 32A or 32B) exists between the part of the canisters 6 that contains the particle board 14. Thus, the entirety of the particle board 14 is fully disposed within the Yamanka cavity 32A or 32B. It is impossible for the particle board 14 to insulate the cavity 32A or 32B from the body 38 when it is fully disposed within the cavity itself. For this reason, it is respectfully requested that the rejection of claim 8 as being anticipated by Yamanka be withdrawn.

Regarding the anticipation rejection of claim 18 over Yamanka, claim 18 is amended in relevant part to require "a removable lid positioned atop the overpack body." In rejecting claim 18, the Office Action cites the roof of the Yamanka facility as being a lid that is positioned atop the body/walls 38. While it is Applicant's position that a roof is not synonymous with a lid as these terms are used in the art, claim 18 is nonetheless amended to clarify that the lid is removable. Clearly, the roof of the Yamanka facility is not removable from the body/walls 38. It is respectfully requested that the rejection of claim 18 over Yamanka be withdrawn.

Claim Rejections Based on Parker

Parker is cited as disclosing an underground nuclear power plant having: a) a body having a cavity with a major portion positioned below grade and; b) a ventilation duct (consisting of elements 40, 41, 42) extending from an above grade outlet to a below grade outlet.

The rejection of claim 1 over Parker is unclear. It is unknown which wall of Parker is cited as reading on the term "body" of claim 1 and what space/room reads on the "cavity." Clarification is requested. Nonetheless, the merits of the rejection of claim 1 over Parker will be discussed to the best of the applicant's understanding.

To start, the facility of Parker is an underground nuclear power plant. It is not a storage facility for radioactive waste. While the Office Action notes, that "a pressure vessel that is inherently in reactor system 14 becomes a canister for storing spent fuel at the end of the life of Parker's reactor, it should be noted that when the reactor system 14 of Parker is buried at the end of its life (or during a meltdown), the entire reactor room 13 is filled with sand or a boron powder mixture by detonating strategically placed charges that cause the floors of the sand storage rooms to give way. *See Parker*, Col. 5, Lines 3-18 and FIG. 2. As such, during a so called "storage cycle," the ventilation duct 40 becomes totally blocked. Thus, the nuclear power plant of Parker is incapable of storing radioactive waste, such as the inherent pressure vessel, while allowing ventilation. It is acknowledged that the ventilated storage of radioactive waste is an intended use of the claimed invention. It is further acknowledged that statements of intended use do not typically serve to patently distinguish a claimed structure over that of a reference. However, this principle is limited by the condition that the structure of the cited reference must be capable of performing the intended use. *See MPEP § 2111-2115* (stating that "statements of intended use do not serve to patently distinguish the claimed structure over that of a reference, as long as the structure of the cited reference is capable of performing the intended use" (emphasis added)). Thus, because the power plant of Parker is incapable of achieving the ventilated storage of radioactive waste, the Parker reference is not applicable.

Furthermore, *assuming arguendo* that the power plant of Parker can perform a ventilated storage function, the anticipation rejection of claim 1 is still improper for a variety of reasons. First, claim 1 has been amended to require an overpack body. To the contrary, the structure of Parker is an underground building comprising a plurality of underground chambers. The structure of the Parker power plant is no an overpack body.

Claim 1 is also amended to clarify that the overpack body contains the at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity. Thus, it is now clear that claim 1 requires that the inlet ventilation duct be located within the overpack body itself. In Parker, the inlet ventilation duct 40 merely passes through the body 15, 18 of the power plant for a short distance. The remaining length of the ventilation duct 40 is located in the ground 10. *See Parker*, FIG. 2. Thus, the body 15, 18 of Parker does not contain at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet," as is required by claim 1.

Therefore, Parker does not teach or suggest an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet. It is respectfully requested that the rejection of claim 1 as being anticipated by Parker be withdrawn.

Regarding the anticipation rejection of claim 8 over Parker, the Office Action asserts that "a concrete wall 120 insulates at least a potion of the body from the cavity that contains the reactor system 14." Claim 8 requires that at least a portion of the cavity be insulated from the body, which is defined in base claim 1 as the body having the at least one inlet ventilation duct. The Office Action identifies the pipe 40 as the inlet ventilation duct. As a result, because the pipe 40 only passes through ceiling 15, the body of the Parker power plant must be the ceiling 15 which forms the cavity 13 in which the reactor 14 is located. *See Parker*, FIG. 2. However, the wall 120 of the Parker power plant in no way insulates its body 15 from the cavity 13. The rejection of claim 8 is improper. Accordingly, it is respectfully requested that the anticipation rejection of claim 8 over Parker be withdrawn.

Regarding the rejection of claim 18 over Parker, claim 18 is amended to require "a removable lid positioned atop the overpack body and covering the cavity." The Office Action cites the roof 18, 27 of the Parker power plant as being a lid that is positioned atop the body. While it is applicant's position that a roof is not synonymous with a lid as those terms are use din the art, claim 18 is nonetheless amended to clarify that the lid is removable for clarity. Clearly, the roof 18, 27 of Parker is not removable from the body/walls 38 of the facility. Accordingly, it is respectfully requested that the anticipation rejection of claim 18 over Parker be withdrawn.

Claim Rejections Based on Breckenridge

Breckenridge is cited as disclosing an underground shelter having: a) a body having a cavity with a major portion positioned below grade and; b) a ventilation duct 17 extending from an above grade outlet to a below grade outlet.

Breckenridge, however, does not teach or suggest the invention of claim 1 for a variety of reasons. First, as discussed above with respect to the Yamanka and Parker, claim 1 is amended to recite an "overpack body." To the contrary, Breckenridge discloses an underground shelter. The body/wall of the Breckenridge shelter is not an overpack body as this term is understood and used in the art.

As discussed above, claim 1 is also amended to clarify that the overpack body contains the at least one inlet ventilation duct. Thus, claim 1 requires that the inlet ventilation duct be located within the overpack body itself for its length from the above grade inlet to the below grade outlet. To the contrary, the inlet ventilation duct 17 of Breckenridge only passes through the wall of the shelter 10 at a below grade point. *See Breckenridge*, FIG. 1. The inlet ventilation duct 17 is not contained within the body/wall of the shelter from an above grade inlet to a below grade outlet. Thus, Breckenridge does not discloses a body that contains at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet," as is required by claim 1.

Therefore, Breckenridge does not disclose an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet. It is respectfully requested that the anticipation rejection of claim 1 over Breckenridge be withdrawn.

Regarding the rejection of claim 8, the Office Action cites Breckenridge as disclosing "a reinforced concrete wall that insulates at least a potion of the body from the cavity (see vertical and horizontal access in FIG. 1)." Claim 8 requires that at least a portion of the cavity be insulated from the body having the at least one inlet ventilation duct. The Office Action identifies the structure 10 as reading on the claim term "body." Thus, the space reading on the claim term "cavity" must be the room formed inside of the structure 10. With that said, there is absolutely no mentions in Breckenridge of insulating the interior of the room from its own walls. Furthermore, even if it is asserted that that the entrance corridor of the Breckenridge shelter is the "cavity" as that term is used in claim 1, this corridor is not insulated from the body/walls that form it. This rejection is improper. It is respectfully requested that the rejection of claim 8 over Breckenridge be withdrawn.

Claim Rejections Based on Makhmutov et al.

Makhmutov is a directed to a mine ventilation system. The applicability of this reference to the claims is vague and the Office Action fails to adequately explain how the reference is applicable. Nonetheless, the rejections of the claims over Makhmutov will be discussed to the best of the Applicant's understanding.

Regarding claim 1, the Office Action cites Makhmutov as disclosing an underground body with cavity 4 and two inlet ventilation ducts 6, 3. Thus, it must be the position that the structure/walls that form the cavity 4 read on the term "body" of the claim 1. As discussed above, claim 1 is amended to recite an overpack body. The body of Makhmutov is not an overpack body as this term is used in the art. The anticipation rejection is therefore overcome.

Additionally, claim 1 also requires that the overpack body contain the at least one inlet ventilation duct that extends from the above grade inlet to the below grade outlet. As discussed above, this requires that the inlet ventilation duct be located within and extend through the

overpack body itself. In Makhmutov, the inlet ducts 6, 3 are not located within the walls that form cavity 4. To the contrary, the inlet ducts 3, 6 of the Makhmutov facility are located within the ground and merely penetrate the walls that form the cavity 4 at a single below grade location. Thus, the walls that form the cavity 4 of Makhmutov do not contain the at least one inlet ventilation duct that extends from the above grade inlet to the below grade outlet, as is required by claim 1.

Therefore, Makhmutov does not teach or suggest an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet. It is respectfully requested that the rejection of claim 1 over Makhmutov be withdrawn.

With respect to the anticipation rejection of claim 3, Makhmutov is cited as disclosing "an outlet at or near the bottom of the cavity 4." However, the figure of Makhmutov illustrates that the outlet of the inlet ventilation duct 6 is actually located near the center of the cavity. Thus, Makhmutov does not disclose a system where the below grade outlet of the inlet ventilation duct is at or near the bottom of the cavity, as is required by claim 3. It is respectfully requested that the anticipation rejection of claim 3 over Makhmutov be withdrawn.

In rejecting claim 5 over Makhmutov, , the Office Action points to the two inlet ventilation ducts 3 and 6 of the Makhmutov mining facility. Makhmutov does discloses two inlet ventilation ducts 3, 6. However, claim 5 has been amended to clarify that the system of the invention requires two of the inlet ventilation ducts. Thus, by way of reference to the base claim 1, claim 5 requires that the overpack body contain two inlet ventilations duct extending from an above grade inlet to a below grade outlet in the cavity. Makhmutov does not disclose two such ducts. To the contrary, the inlet ventilation duct 3 of Makhmutov never reaches the cavity 4. Thus, it is respectfully requested that the anticipation rejection of claim 5 over Makhmutov be withdrawn.

Claim Rejections Based on Rogers

Rogers is cited as disclosing a "shipping cask." The Office Action further notes that the claims of the present application are directed to an apparatus, and that the shipping cask of Rogers can be positioned such that a major portion of the body is below grade.

To start, for the reasons discussed above, the term "positioned below grade" should be given patentable weight. However, even assuming that this term is only an "intended use" of the overpack body of claim 1, it is still necessary for the cask of Rogers to be capable of performing this intended use." *See MPEP § 2111-2115* (stating that "statements of intended use do not serve to patently distinguish the claimed structure over that of a reference, as long as the structure of the cited reference is capable of performing the intended use" (emphasis added)). However, if the shipping cask of Rogers is positioned to that a major portion of its body below grade, its lower cooling vents 92 would become blocked, thus preventing it from properly ventilating the heat load during storage The shipping cask of Rogers is not capable of performing the intended use of the system of claim 1, which is to provide underground ventilated storage of radioactive waste.

Furthermore, even *assuming arguendo* that the shipping cask of Rogers can be positioned below grade perform the intended function, the rejection of claim 1 as being anticipated by Rogers is still improper because it does not have a body that contains at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity, as is required by claim 1. If the shipping cask of Rogers is positioned so that a major portion of its body is below grade, the bottom ventilation ducts 92 would be entirely below grade while the upper ventilation ducts 94 in the lid 30 would be entirely above grade. In such an arrangement, the Rogers cask does not have a body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity. .

Therefore, Rogers does not teach or suggest an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity, as

is required by claim 1. Accordingly, it is respectfully requested that the rejection of claim 1 over Rogers be withdrawn.

Regarding the rejection of claim 2, the Office Action is silent as to how the shipping cask of Rogers, even if positioned below grade, anticipates claim 2. Claim 2 requires that the above grade inlet be in a side wall of the overpack body. With reference to the cask of Rogers, and assuming that it is positioned below grade, the above grade inlets of the ducts 94 are still located in the top surface of the lid 30 (see FIG. 2) and the inlet of the bottom ducts 92 would be below grade. Thus, when the Rogers cask is positioned below grade as asserted in the Office Action, there is no above grade inlet in the side wall of its body. It is respectfully requested that the anticipation rejection of claim 2 over Rogers be withdrawn.

The rejection of claim 5 is also improper for the same reasons set forth above with respect to claim 2.

Regarding claim 10, the Office Action is silent as to how the shipping cask of Rogers, even if positioned below grade, anticipates claim 10. Claim 10 recites that the inlet ventilation duct and the cavity are hermetically sealed to the ingress of below grade liquids. If a majority of the cask of Rogers is positioned below grade as contended in the Office Action, the bottom ducts 94 would be below grade and blocked by soil. Nonetheless, below grade liquids could easily penetrate the soil and enter the bottom ducts 94. Clearly, the cask of Rogers is not formed such that the inlet ventilation duct and the cavity are hermetically sealed to the ingress of below grade liquids, as required by claim 10. It is respectfully requested that the anticipation rejection of claim 10 over Rogers be withdrawn.

Regarding claim 26, the Office Action is silent as to how the shipping cask of Rogers, even if positioned below grade, anticipates claim 26. Claim 26 requires approximately 6 to 36 inches of the overpack body's height be above grade. As discussed above, the cask of Rogers is an above-ground shipping cask. There is absolutely no basis in the disclosure of Rogers to support the idea of submerging the cask, never mind submerging it such that 6 to 36 inches of its body's height is above grade. The rejection of claim 26 over Rogers as being anticipated is

clearly improper. It is respectfully requested that the rejection of claim 26 over Rogers be withdrawn.

Claim Rejections Based on Kok, et al

Kok is cited as disclosing a "storage cask." The Office Action notes that the claims are directed to an apparatus and that the storage cask of Kok can be positioned such that a major portion of the body is below grade.

First, for the reasons discussed above, the term "positioned below grade" in claim 1 should be given patentable weight. However, even assuming that this term is only an "intended use" of the overpack body of claim 1, it is still necessary for the cask of Kok to be capable of performing this intended use." *See MPEP § 2111-2115* (stating that "statements of intended use do not serve to patently distinguish the claimed structure over that of a reference, as long as the structure of the cited reference is capable of performing the intended use" (emphasis added)). However, if the storage cask of Kok is positioned so that a major portion of its body below grade, its cooling vents (which consist of passageways 7, 8) would become blocked, thus preventing it from properly ventilating the heat load during storage. The storage cask of Kok, when positioned below grade, is not capable of performing the intended use of the system of claim 1, which is to provide underground ventilated storage of radioactive waste.

Second, *assuming arguendo* that the storage cask of Kok can perform the intended function, claim 1 still requires that the overpack body contain at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity. In Kok, the cavity 2 is formed by outer cylinder body 5 and a centrally located chimney 6 is provided to facilitate cooling. *See Kok*, Fig. 1. However, the ventilation ducts (consisting of passageways 7, 8) of the Kok storage cask are located within the chimney 6 and are not in spatial communication with the cavity 2. *See Kok*, FIG. 2 and corresponding discussion. Thus, even if positioned below grade, the storage cask of Kok does not contain a ventilation duct extending from an above grade inlet to a below grade outlet in the cavity, as is required by claim 1.

Therefore, Kok does not teach or suggest an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity, as is required by claim 1. It is respectfully requested that the anticipation rejection of claim 1 over Kok be withdrawn.

Regarding the rejection of claim 2 over Kok, the Office Action is silent as to how the storage cask of Kok, even if positioned below grade, anticipates claim 2. Claim 2 requires, *inter alia*, that the above grade inlet be in a side wall of the overpack body. With reference to the storage cask of Kok, and assuming that it is positioned below grade, the inlets of the top portions 7 of the ducts are located in the top surface of the cask (see FIG. 1) and the openings of the bottom portions 8 of the ducts would be below grade. Thus, when the Kok cask is positioned below grade as asserted in the Office Action, there is no above grade inlet in the side wall of its body. It is respectfully requested that the rejection of claim 2 over Kok be withdrawn.

Regarding the rejection of claim 21, the Office Action is silent as to how the storage cask of Kok, even if positioned below grade, anticipates claim 21. Claim 21 recites that the lid comprises at least one outlet ventilation duct for allowing heated air to exit the cavity" No lid is exemplified in Kok. Moreover, the vents are in the cylindrical chimney 6, which is a part of its body...not the lid. It is respectfully requested that the rejection of claim 21 over Kok be withdrawn.

Regarding the rejection of claim 26, the Office Action is silent as to how the shipping cask of Kok, even if positioned below grade, anticipates claim 26. Claim 26 requires approximately 6 to 36 inches of the overpack body's height be above grade. As discussed above, the cask of Kok is an above-ground shipping cask. There is absolutely no basis in the disclosure of Kok to support the idea of submerging the cask such that 6 to 36 inches of the body's height is above grade. In fact, there is no motivation in Kok to position the cask below grade at all. The rejection of claim 26 over Kok as being anticipatory is clearly improper. It is respectfully requested that the rejection of claim 26 over Kok be withdrawn.

Regarding the rejection of claim 30, Kok does not contain a duct that allows heated air to escape the cavity. As mentioned above, the storage cask of Kok does not even have a duct in spatial communication with the cavity 2. It is respectfully requested that the anticipation rejection of claim 30 over Kok be withdrawn.

Claim Rejections Based on Chaudon et al.

Chaudon is cited as disclosing an apparatus for dry storage of radioactive waste materials. The underground storage facility of FIG. 5 of Chaudon is another warehouse-style storage facility that is designed to accommodate a plurality of storage tubes 10 in its internal room. In comparison, the system of the present invention utilizes an overpack style body.

Regarding claim 1, the facility in FIG. 5 of Chaudon is warehouse-style facility wherein the structure/body that contains the inlet ventilation duct 30 is a building specifically designed to form a large room capable of storing a plurality of tubes/canisters 10 in a side-by-side arrangement. *See Chaudon*, FIG. 5. As discussed above with respect to Yamanka, such a building is not an overpack body, as is required by claim 1.

It should be noted that Chaudon does disclose an overpack style storage container in FIG. 1. *See Chaudon*, FIG. 1. However, the overpack style storage container of FIG. 1 of Chaudon does not anticipate claim 1 for a number of reasons. First, for the reasons discussed above, the term "positioned below grade" should be given patentable weight. Second, even assuming that this term is only an "intended use" of the claimed system of claim 1, the cask in FIG. 1 of Chaudon is not capable of being used to perform the intended use of claim 1, which is underground ventilated storage, because positioning the cask of FIG. 1 of Chaudon below grade would block its lower cooling vents 14. As stated above, statements of intended do not serve to patently distinguish the claimed structure over that of a reference only so long as the structure of the cited reference is capable of performing the intended use." *See MPEP § 2111-2115* (emphasis added).

Furthermore, even *assuming arguendo* that the cask of FIG. 1 of Chaudon can perform the intended function of the system of claim 1, the rejection of claim 1 as being anticipated by

Chaudon is still improper. When the cask of FIG. 1 of Chaudon is positioned so that a major portion of its body is below grade, the bottom ventilation ducts 14 would be entirely below grade while the upper ventilation ducts 16 would be entirely above grade. Thus, the Chaudon cask of FIG. 1 would not have a body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet, as is required by claim 1.

Therefore, Chaudon fails to teach or suggest an overpack body containing at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity, as is required by claim 1. It is respectfully requested that the rejection of claim 1 over Chaudon be withdrawn.

With respect to the rejection of claim 22 as being anticipated by Chaudon, Chaudon does not disclose an outlet ventilation extending horizontally though a side wall of the lid. The assertion that the outlet ventilation ducts 28 of the Chaudon facility of FIG. 5 extend horizontally has no basis in the drawings or teachings of Chaudon. The only penetration through the supposed lid/roof of the facility of FIG. 5 of Chaudon is in the vertical direction. It is respectfully requested that the anticipation rejection of claim 22 over Chaudon be withdrawn.

Finally, none of the references cited in the Office Action provide the deficiencies noted above for the Yamanka, Parker, Breckenridge, Makhmutov, Rogers, Kok, and/or Chaudon references in a properly combinable manner.

Amendments to the Claims

Claim 1 has been amended to recite that the body is an "overpack body." No new matter is added. Support for this amendment can be found in FIG. 2 and throughout the original specification which refers to the body of the system as an underground VVO, which is short for a ventilate vertical overpack.

Claim 1 also amended to clarify that overpack body "contains" the inlet ventilation duct. No new matter is added. Support can be found in FIG. 2.

Claim 18 is amended to clarify that the lid is "removable." No new matter is added. Support can be found in paragraph [0031]

Claim 32 is new and is directed to a system for storing spent nuclear fuel comprising: a ground having a grade level; a body forming a cavity, a major portion of the body positioned below grade; at least one ventilation passageway extending through the body from an above grade opening in an exterior surface of the body to a below grade opening in an interior surface of the body, the below grade opening being in spatial communication with the cavity; and a canister positioned in the cavity, an annular space being formed between the internal surface of the body and the canister. No new matter is added. Support can be found in FIG. 2 and 3 and the corresponding discussion.

Claim 33 is new, depends on claim 32, and further recites that the body is an overpack body. No new matter is added. Support can be found in FIG. 2 and 3 and the corresponding discussion.

Claim 34 is new, depends on claim 32, and further recites that the system further comprises means for insulating the inlet ventilation passageway from the body. No new matter is added. Support can be found in FIG. 2 and 3 and the corresponding discussion.

Claim 35 is new and is directed to a system for storing spent nuclear fuel comprising: a ground having a grade level; a body having a cavity formed by an internal surface of the body, a major portion of the body positioned below grade; the body containing at least one ventilation passageway extending from an above grade opening in an exterior surface of the body to a below grade opening in the interior surface of the body, the below grade opening being in spatial communication with the cavity; a canister positioned in the cavity in a vertical orientation; and wherein the cavity is of a size such that the internal wall of the body prohibits the canister from tipping over. No new matter is added. Support can be found in FIG. 2 and 3 and the corresponding discussion.

All other claim amendments are procedural and do not substantively change the scope of those claims.

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It is believed that all grounds of rejection and objection have been traversed or obviated, and that the rejections and objection should be withdrawn, and the application allowed

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